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Proposed National Strategies for the Prevention of Leading Work – Related Diseases and Injuries

• Psychological Disorders •

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
National Institute for Occupational Safety and Health

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Proposed National Strategy for the Prevention of Psychological Disorders

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Introduction

This document, *A Proposed National Strategy for the Prevention of Psychological Disorders*, summarizes what actions need to be taken to prevent occupational psychological disorders. It was developed in 1985 at a conference sponsored by the National Institute for Occupational Safety and Health (NIOSH) and The Association of Schools of Public Health (ASPH), which brought together over 50 expert panelists and 450 other occupational safety and health professionals.

In addition to the strategy for psychological disorders, NIOSH and ASPH have published strategies for the other nine leading occupational diseases and injuries: occupational lung diseases, musculoskeletal injuries, occupational cancers, severe occupational traumatic injuries, occupational cardiovascular diseases, disorders of reproduction, neurotoxic disorders, noise-induced hearing loss, dermatological conditions.

The proposed strategies were originally published in a two volume set, *Proposed National Strategies for the Prevention of Leading Work Related Diseases and Injuries, Part 1 and Part 2*. These proposed strategies are not to be considered as final statements of policy of NIOSH, The Association of Schools of Public Health, or of any agency or individual who was involved. Hopefully, they will be used in the quest to prevent disease and injury in the workplace.

To learn of the availability of the complete texts of Part 1 and Part 2, or to obtain additional copies of this or other Strategies, contact NIOSH Publications, 4676 Columbia Parkway, Cincinnati, Ohio 45226. Telephone (513) 533-8287.

A Proposed National Strategy For the Prevention of Psychological Disorders

I. Introduction

Psychological disorders are quite varied in nature and their causation is complex, encompassing occupational as well as nonoccupational factors. This greatly complicates the task of developing an appropriate prevention strategy focusing on work-related issues. Still, occupational experiences can have such a pervasive influence (both positive and negative) on overall states of psychological well-being that they warrant major consideration in any plan of action on this subject.

The strategy builds on current knowledge and practices in suggesting initiatives for industry, labor, government, and academia to help promote the psychological health of workers. Key steps include measures to improve working conditions and employee mental health services, as well as research and surveillance to advance our understanding of the problem.

II. Work and Psychological Well-Being

Implicit in other NIOSH strategies for preventing leading work-related diseases and injuries is the premise that work presents a risk or threat to health. With psychological functioning and mental health, work can similarly have adverse consequences, but it can also have an important positive impact. In Western society at least, work experience is considered to play an integral role in psychological development and well-being.

This perspective is aptly expressed by Albert Camus: "Without work, all life goes rotten, but when work is soulless, life stifles and dies" (The Myth of Sisyphus). Smith and Smith claim that occupations can provide a framework for the organization of behavior (*1*). Gardell suggests that "due to influences exerted by the Protestant ethic and other culturally conditioned factors . . . it is probable that most people perceive work to be one of the most important life areas for the individual's general satisfaction" (*2*).

Psychoanalytic theorists view work as a primary source of self-identity. Lazarus (3) recounts Erikson's (4) depiction of "Biff," in Arthur Miller's *Death of a Salesman*, as suffering "ego-diffusion" for lack of ability to develop a sense of usefulness or productivity. Herzberg (5), McGregor (6), and Argyris (7) speak of motivation, esteem, and self-actualization through work. Lazarus sees another psychologically healthful function of work, i.e., as a form of coping and refuge, a haven against problems, loneliness, and depression (3). Several studies on termination from work tend to bear out such tenets. Most recently, Linn, Sandifer, and Stein found increased levels of somatization, depression, and anxiety in the unemployed, as well as increased visits to the doctor, medication use, and days in bed (8).

These considerations add significance to the prevention effort for psychological disorders and distinguish it from prevention strategies directed at most other forms of work-related disease or injury. Efforts to improve work experience to prevent the development of psychological problems can also enhance psychological growth and well-being.

III. Work-Related Psychological Disorders: The Focus of the Strategy

A. Disorders of Current Interest

An initial hurdle in developing a national strategy to prevent psychological disorders is a semantic one. The very expression "psychological disorders" connotes a category of problems encompassing a wide array of social, behavioral, and biomedical conditions with diverse and often unknown etiologies. The focus of this strategy is on psychological disorders of general concern in the occupational health arena, i.e., disorders commonly investigated under the general rubric of "job stress"[1] and which are believed to be amenable to workplace interventions. These disorders are not necessarily conditions always identifiable under recognized systems of medical classification such as the International Classification of Diseases (9) or the Diagnostic and Statistical Manual (DSM-III) of the American Psychological Association (10). Nevertheless, these disorders can represent significant functional disturbances or risks for development of clinical disorders. These conditions include:

- Affective disturbances such as anxiety, depression, and job dissatisfaction
- Maladaptive behavioral lifestyle patterns
- Chemical dependencies and alcohol abuse

The strategy is less concerned with the area of chronic mental illness because occupational causation there is not well documented. Furthermore, these problems frequently require removal from the workforce or hospitalization, making

[1] There is little consensus or consistency in the interpretation and use of the terms "stress" or "job stress" (sometimes connoting causal factors, sometimes outcomes, and sometimes intermediate processes). It is beyond the intent of this document to resolve the ambiguity. To avoid misinterpretation, an effort is made here to use more precise language. However, for economy of expression the terms "stress (job stress)" are used sparingly in the text to refer to a body of literature or field of study concerned principally with the adverse health (mental health) effects of the psychosocial aspects of work. These terms and their variations (e.g., "stressors," "negative stress," "stressful") also appear enclosed in quotes throughout the text in reference to source literature but only where the original report does not allow replacement with a less ambiguous term.

workplace interventions for their control difficult. The strategy is not concerned with disturbances of psychological functions attributable to organic, genetic, or neurologic pathogenesis, although such mechanisms do not preclude a workplace basis (e.g., exposure to neurotoxic chemicals). Some of these problems are treated in other strategies, for example, the NIOSH prevention strategies for neurotoxic disorders and disorders of reproduction. Finally, many acute and chronic somatic disorders are widely accepted as having a basis in job stress, notably cardiovascular disease (CVD). Beyond the recognition of CVD and other somatic disturbances as potential manifestations or sequelae of psychological disorders, the present strategy is confined to disorders in the psychologic-behavioral domain. (CVD is the subject of a separate strategy.)[2]

B. The Occupational Connection and Prevention Focus

The occupational involvement in psychological disorders is not a matter of dispute in the mental health community. DSM-III lists "psychosocial stressors," specifying "occupational stress," as a major diagnostic axis (*10*). The present prevention strategy is particularly concerned with psychological disorders that bear a relationship to working conditions. At the same time, the strategy acknowledges the interplay of work and non-work factors in the etiology of psychological disorders and the difficulty of attributing psychological disorders exclusively to either domain. Accordingly, the strategy not only focuses on the understanding and control of job factors that contribute to psychological disorders in workers but, through promotion of improved workplace mental health services, also strives to remedy workers' psychological disorders regardless of a clear occupational basis.

This approach is consistent with current perspectives on the domain of occupational medicine. In the 1983 George H. Gehrmann Lecture to the American Occupational Medicine Association, Collings noted a "relentless" trend toward a "fuzzier and fuzzier" boundary between the occupational and nonoccupational in terms of etiology and treatment of disease (*14*). Collings asserted that no medical condition escapes the influence of eight hours of daily work. Moreover, Hilker, speaking as medical director of Illinois Bell, declared that industry has both a responsibility and business interest (citing costs of personnel and productivity problems) in rehabilitating employees for psychological disorders (*15*). Hilker also suggested that rehabilitative efforts may be more effective when conducted in an occupational (as opposed to a community) setting.

IV. Scope of Psychological Disorders as a National Health Problem

Currently, no surveillance system exists to adequately gauge the national scope of psychological health disorders. The best estimate to date of the magnitude of psychological disorders as a national health problem stems from data in the National

2 Although somatic disease is excluded from the present strategy, specific attention should be given to the increasing body of evidence linking physical illness and psychological factors. Recent developments in the field of psychoimmunology are most striking. A review by Marx describes pervasive anatomic and biochemical links between the immune and nervous systems to explain the influence of mood on susceptibility to disease (*11*). Of particular interest are suggested declines in immune function even with "commonplace stressors" (*12,13*).

Institute of Mental Health (NIMH) Epidemiologic Catchment Area (16). In this study, 17,000 community residents at five regional sites were interviewed using a standardized procedure.[3] The results are sobering. First reports indicate a 6-month prevalence of psychological disorders about equal to that of hypertension. Specifically, 17%-23% of adults were found to have been afflicted with one or more of over a dozen major psychological disorders listed in the DSM-III (1980). In addition, 7%-15% were found to have had one or more of the various anxiety disorders alone, and rates for substance abuse were 6%-7%. Lifetime prevalence rates were considerably higher (29%-38% for major disorders). Psychological disorders were most common during the prime working age of 25-44 years. These findings reinforce earlier estimates of a population prevalence rate for psychological disorders approaching 25% (17).

Other indicators affirm a problem of psychological disorders of national prominence. Research by NIOSH showed that mental disorders were the third most disabling condition among Social Security Administration (SSA) disability allowances, preceded only by musculoskeletal injuries and circulatory diseases (18). For the period 1975-1976, fully 11% of all SSA disability allowances were for mental disorders. In a 1985 study of medication use by *Pharmacy Times*, Valium was the fourth most commonly prescribed drug in the United States (19). Two of the three most frequently prescribed drugs are specific for the treatment of hypertension, a condition that can have a psychological component. In general, psychotherapeutic agents accounted for one-quarter of all outpatient prescriptions in 1984 (20).

Patterns observed in the use of health services add to the evidence. In a survey[4] of office visits to internists during 1980-1981, Cypress found that 3.3% of all visits resulted in diagnoses of mental illness (21). The percentage was nearly double for the 25- to 44-year age group. According to a 1980 study of patient needs in community primary care centers, the most common request for health care involved psychosocial problems (22). A study among members of a health maintenance organization in the Washington, D.C., area found "anxiety stress" was the health education topic most preferred by members of both sexes (23).

Economic impact is another measure. Costs for direct care of mental illness are reported to exceed $36 billion annually (24).

V. Psychological Disorders as an Occupational Health Concern

Epidemiologic and health care data on costs are accumulating to provide an increasingly clearer picture of the occupational relevance — both cause and costs — of psychological disorders.

Occupational gradients with respect to mental health have long been known. Mental disturbances are most heavily concentrated among workers with lower income, lower education, fewer skills, and less prestigious jobs (25,26). Similar gradients are apparent for alcoholism (27,28).

Quinn and Staines found an appreciable drop in job satisfaction among U.S. workers during the decade of the seventies (29). Virtually all occupational and demographic subclasses were affected. Findings in other Western industrialized countries reinforce the U.S. experience. Data collected in the 1970s indicated that about one-fourth to one-third of Swedish workers viewed their work as often "stressful" or reported

[3] The Diagnostic Interview Schedule.
[4] National Ambulatory Medical Care Survey.

moderate to high levels of "stress" at work (*30,31*). In a recent nationwide Canadian study, 60% of the workers studied reported they had experienced "negative stress" at work within the previous year, and 35% reported "adverse psychological effects" (*32*). (Only 11% reported adverse physical effects.) Again, such reactions were most common in the age range of 25-44 years.

Going beyond these generalizations, more precise analyses reveal that specific occupations and job factors present particular risks. Health professionals (e.g., physicians, dentists, nurses, and health technologists) have higher than expected rates of suicide (*27,33*) and of alcohol/drug abuse (*34*). Nurses and other health care workers have increased rates of hospital admissions for mental disorders (*34,35*) and elevated admission rates to mental health centers (*36*). "Burnout" is particularly prevalent among health, human service, and teaching professionals (*37*). Regarding job risk factors, a wide range of working conditions has been associated with adverse affective states and job dissatisfaction. Examples include role stressors (*38*) and demands in excess of control (*39*). (Further discussion of job-risk factors is given below in the segment on job design at the beginning of the strategies section.)

Data on workers' compensation awards provide a particularly striking indicator of the magnitude of psychological disorders as an occupational health issue. In general, claims for psychological disorders that result from job experiences have multiplied over the decade of the 1970s. According to Lublin, the State of California alone received 3,000-4,000 "psychiatric" injury claims in 1979, half of which resulted in monetary awards (*40*). The prevalence of one specific type of claim, i.e., "gradual mental stress,"[5] has shown a dramatic increase in recent years. A 1983 study by the California Workers' Compensation Institute showed that such claims more than doubled from 1980 to 1982, while claims for all other disabling injuries actually decreased by over 10%. According to a study by the National Council on Compensation Insurance, claims for gradual mental stress alone now account for about 11% of all claims for occupational disease (*41*). That study also showed that in the period 1981-1982 costs of workers' compensation for gradual mental stress reached and then surpassed the average cost of claims for other occupational diseases.

Total costs for psychological disorders in terms of medical services, employment, and productivity are far more elusive. Several sources agree, however, that such costs in the United States run in the tens of billions of dollars annually (*42-44*). These sources suggest that adding in the costs of physical health problems related to psychological disorders brings the total bill to $50-$100 billion annually.

Emerging trends in the economy, in technology, and in the demographic characteristics of the work force may result in increased risk for psychological disorders. Some of the more evident trends are listed below with a description of their implications.

5. The expression "gradual mental stress" is jargon used in the field of workers' compensation insurance and refers to cumulative emotional problems that stem mainly from exposure to adverse psychosocial conditions at work. Emotional problems related to a specific traumatic event at work — such as witnessing a severe accident — or to work-related physical disease or injury are not included.

- Of the 20 fastest-growing occupations, half are related to the health and computer fields (45).

  Health service increases
  A 26% increase is projected for health services, with an increase of 33% for registered nurses and 29% for nurses' aides orderlies attendants (45). As noted earlier, health service professionals and nurses in particular have consistently shown elevated risks for psychological disorders.

  Computer field advances
  Bezold et al. cite data indicating that computers and robots will probably affect 7 million factory jobs and 38 million office jobs (46). According to these observers, the projected effects will include job displacement, deskilling, and lower paying jobs, each of which has implications for psychological well-being.

- Nine of every ten new jobs in the next decade will be in the service sector (47), a sector already shown to be at increased risk for psychological disorders (36). Furthermore, it has been reported that workers in routine service jobs will probably not gain the compensation and benefits awarded to workers in the traditional industrial and manufacturing jobs (46,48).

- Six of every ten new jobs in the next decade will be filled by women (48), and the proportion of women will continue to increase up to 46% of the work force (49). Given concerns about multiple role demands and constrained occupational opportunities, this trend may have an adverse impact on mental health.

- According to Silvestri and Lukasiewicz, the five occupations with the greatest number of new jobs by 1995 will be cashiers, registered nurses, janitorial workers, truck drivers, and waiters and waitresses (45). Many jobs in this cluster provide limited opportunity for growth and development and limited availability of benefits.

VI. Conceptual Basis for the Prevention Plan

A prevention strategy for health disorders must take account of both causal mechanisms and factors that perpetuate the disorders. Generic approaches tend to focus on the interplay of host, agent, and contextual factors. One such approach, the Canadian Health Field Model, has received wide attention as a framework for understanding and attacking the causes of ill health. This model is particularly suited as the basis of a prevention strategy for psychological disorders (50).* The Quebec Social and Family Affairs Council recently reported the most current interpretation of the Health Field Model, identifying three main categories of variables (53):

- Individual factors — physiological and psychological characteristics as determined by biologic and hereditary factors.

- Environmental factors — aspects of the physical, social, economic, and working environments.

* The Canadian Health Field Model was adopted in 1979 by the U.S. Surgeon General for analyzing the ten leading causes of death in the United States (51), and in 1985 by NIOSH for developing a strategy to combat work-related musculoskeletal injury (52).

- Health care systems — quantity, arrangement, and nature of health care

This model views health as a process of adjustment between the individual and the environment. Psychological disturbances are considered a manifestation of imbalance between the individual and the environment and are eased or exacerbated depending on the health care available. The Quebec interpretation departs from the original formulation (*50*) in its treatment of one category of variables: unhealthy behaviors or lifestyles. In the original model, these factors are considered as acts of deliberate exposure to risks, whereas in the Quebec interpretation they more accurately represent consequences of stress.

This concept of the health process is consistent with formulations in contemporary theory on stress and with empirical observations. The basic concept in most current approaches to job stress theory embodies an unfavorable interaction between worker attributes and job conditions that leads to psychological disturbances and unhealthy behaviors and ultimately to physiological ill health (*2,39,54-56*).

Research findings confirm this view on a general level. Both physical and psychosocial job characteristics have been shown to play a role in the etiology of work-related psychological disturbances. These factors operate in concert with other factors — such as stressful life events or familial demands and support — and with physical and psychological traits, capacities, and needs of the workers (personality, age, gender, experience/learning, etc.). The interplay among these variables is complex, however, and the relative influence of the different classes of variables is not thoroughly understood.

The current understanding of psychological health processes, as described here, suggests key elements in a prevention strategy for work-related psychological disorders. These include abatement of known job (environmental) risk factors, research to improve understanding of these risk factors, surveillance to detect and track risk factors and to identify occupational groups at risk, and education to improve the recognition of risk factors and their control. At the same time, efforts are needed to improve mental health services for workers.

VII. Prevention of Work-Related Psychological Disorders: The Strategy

The various methods for preventing work-related psychological disorders are classified here into four somewhat distinct categories of action:

- Job design to improve working conditions
- Surveillance of psychological disorders and risk factors
- Information dissemination, education, and training
- Enrichment of psychological health services for workers

The discussion below covers the limits of current knowledge and practice and the strategic (prevention) initiatives that follow as a consequence in each area. Research is considered under each activity, as needed. To help facilitate implementation, the recommendations are stated in concrete terms that identify the specific actors and actions needed whenever possible. Several recommendations, however, defy such specificity by nature, as for example, general policy matters, generic research, and broad classes of organizations or activities.

A. Job Design to Improve Working Conditions

The literature on occupational stress/health identifies a wide range of working conditions, both physical and psychosocial, that pose a threat to psychological well-being. Physical aspects include neurotoxic agents and physical/ergonomic characteristics of the task and workplace. The NIOSH National Occupational Hazard Survey (57,58) estimates that nearly 12.5 million U.S. workers face exposure to metals and organic compounds (mercury, lead, solvents, etc.) known to cause psychological disorders. Psychological problems secondary to the physical disorders that arise from poor ergonomic conditions are increasingly apparent, as seen in recent research on office automation (59). Prevention efforts for controlling health problems – including psychological effects – that result from exposure to neurotoxic and physical/ergonomic risk factors are treated in separate NIOSH strategies for preventing leading work-related diseases and injuries (52,60).

With respect to job design, the present strategy focuses principally on psychosocial factors. Although "psychosocial" has not been succinctly defined in reference to working conditions, in general usage it connotes the social environment at work, organizational aspects of the job, and the content and certain operational aspects of the tasks performed. Unlike neurotoxic agents and ergonomic hazards, hazards involving psychosocial factors respect no occupational boundaries. Thus, the potential for exposure to this class of health risks is ubiquitous. A great many psychosocial factors have been identified as potentially hazardous. The most firmly established of these, in terms of quantity and convergence of evidence, are discussed below.

1. Knowledge of Psychosocial Risk Factors: The Status Quo

a. Workload and Workpace

Although some evidence exists that workload per se is associated with negative health outcomes (61), the load or rate does not seem to be as critical as the amount of personal control or discretion exercised over these demands. Evidence is growing that control is the decisive factor in determining the health consequences of work demands, such that adverse effects occur when control is not commensurate with demands (62,63). Similarly, research on the degree of participation in making decisions has shown that mood disturbances, lowered self-esteem, and impaired supervisory relationships may result from nonparticipation of workers (64,65).

Research on machine-paced work (involving limited worker control of job demands) has indicated, from the beginning, a link with adverse health effects. Reports from early field studies showed a variety of negative psychological reactions (job dissatisfaction, tension, etc.) in machine-paced work (66,67). In a NIOSH-sponsored study of 23 occupations, machine-paced assembly workers reported the highest levels of anxiety, depression, and irritation as well as more frequent somatic complaints (54).

b. Work Schedule

Substantial evidence indicates that the temporal scheduling of work can have a significant impact on psychological, behavioral, social, and physical well-being. Rotating shifts and permanent night work, in particular, have been linked to a variety of such disturbances (68,70). These shift-

related complications have been attributed to a disruption of physiological and circadian rhythms and of social interactions associated with a work schedule that is at odds with the normal diurnal activity cycle (*71*).

c. Role Stressors

In a nationwide survey, Kahn et al. found that role ambiguity on the job was prevalent in many organizations (*72*). Men who experienced role ambiguity reported lower self-confidence, higher job tension, and lower job satisfaction. Role conflict has been linked similarly to job tension and dissatisfaction (*38*). Research has also linked role ambiguity to indicators of mental ill health, including depressed mood, dissatisfaction with life, tension, anxiety, and resentment (*73*), and to adverse psychophysiological states such as increased heart rate and blood pressure (*74*).

d. Career/Security Factors

Several conditions associated with career development/job future (lack of job security, under/over promotion, fear of job obsolescence, and early retirement) have been related to adverse psychological effects (e.g., low job and life satisfaction, low self-esteem) as well as poor physical health (*65,75,76*).

e. Interpersonal Relations

Poor relationships with colleagues, supervisors, and subordinates at work have been identified as important risk factors (*75,77,78*). Social relationships both at work and outside the workplace are most commonly viewed as playing a moderating role, and adverse effects of exposure to job risk factors are more likely or pronounced when relationships provide little support (*76,79,80*). For example, a study of more than 1,000 male workers showed that support from supervisors and co-workers buffered the effects of job demands on depression and job dissatisfaction (*39*). Other research indicates a more direct effect of social support in offsetting the effects of adverse working conditions (*81*).

f. Job Content

The nature of the tasks performed has critical implications for psychological well-being. In particular, narrow, fragmented, invariant, and short-cycle tasks that provide little stimulation, allow little use of skills or expression of creativity, and have little intrinsic meaning for workers have been associated with job dissatisfaction and poor mental health (*56,74,82*).

g. Intervening Variables

The effects of the aforementioned factors on psychological well-being must be considered in the context of situational and personal variables that originate outside the job. Although these outside factors are not amenable to control through job design, they should be recognized here due to their potential interaction with job factors. Life events and the Type A behavior pattern are two such variables. Risk factors outside the work environment such as family problems, financial difficulties, and major life changes have been linked to a host of physical and psychological disorders (*83*).

Although the Type A behavior pattern (characterized by a sense of competitiveness, time urgency, and overcommitment) may be fostered by a stressful job, it is also likely that individuals with this tendency select themselves into particularly demanding jobs.

2. Recommendations for Controlling Psychosocial Risk Factors at Work

Although it cannot be said that an understanding of work-related risk factors for psychological disorders is complete or that further study is unwarranted, knowledge is sufficiently advanced to permit more concerted action toward the control of risk factors at the worksite. Training and technology transfer, to be treated below in a separate initiative, is particularly important, as is continuing research to hone our knowledge further and to investigate emerging problems.

Motivational and leadership efforts are equally important, however, and are the primary subject of discussion here. Although government agencies and industry organizations have provided direction in the control of physical workplace hazards, psychosocial aspects of the job have received little attention. In particular, recommendations in this area have never been issued at the national level. The generalizations below are based on existing knowledge and converging opinion on risk factors and are offered as candidates for such recommendations.

The intent here is not to define specific actions for intervention because the nature of such actions will vary depending on several factors (e.g., industry, organizational level, etc.). Rather, the aim is to offer positive principles to guide the design of jobs in the interests of improving mental health. Although research has demonstrated these principles to be effective, some workplaces may not be readily amenable to the needed interventions. Furthermore, the underlying risk factors can be interrelated, and successful intervention is likely to require attention to more than one of these principles.

a. Workload and Workpace

Demands (both physical and mental) should be commensurate with the capabilities and resources of individuals, avoiding underload as well as overload. Provisions should be made to allow recovery from demanding tasks, or for increased job control under such circumstances. Increased control by the individual over the pace of work is one example of a positive step.

b. Work Schedule

Work schedules should be compatible with demands and responsibilities outside the job. Recent trends toward flexitime, a compressed work week, and job sharing are positive steps. When schedules involve rotating shifts, the rate of rotation should be stable and predictable, and should be in a forward (day-to-night) direction.

c. Work Roles

Roles and responsibilities at work should be well defined. Job duties need to be clearly explained, and conflicts in terms of job expectations should be avoided.

d. Job Future

Ambiguity should be avoided in matters of job security and opportunities for career development. Employees need to be clearly informed of promotional opportunities and mechanisms for improving skills or professional growth within the organization, as well as impending organizational developments that may potentially affect their employment.

e. Social Environment

Jobs should provide opportunities for personal interaction both for purposes of emotional support and for actual help as needed in accomplishing the assigned tasks.

f. Content

Jobs should be designed to provide meaning, stimulation, and an opportunity to use skills. Job rotation or increasing the scope work are examples of steps to improve narrow, fragmented work activities that fail to meet these criteria.

g. Participation Control

Individuals should be given the opportunity to have input on decisions or actions that affect their jobs and the performance of their tasks.

3. Research Needs

Other steps beyond formulating and promulgating such recommendations can help implement improved job design.

a. NIOSH can work directly with industry, through mechanisms for technical assistance or cooperative agreements, to study problematic situations and to develop and install solutions.

b. Intervention studies are needed to evaluate the effects of psychosocial job enhancement in terms of psychological well-being. These studies should also examine performance outcomes and related bottom-line measures that are important for motivating industry to action. Beyond an incentive to improve working conditions, research of this nature can also provide models and direction to help guide the implementation of psychosocial improvements.

c. More basic study is needed on the role of extra- organizational factors, vis-a-vis job-design factors, as they affect psychological well-being. Continuing research is also needed to examine the impact of technologic developments (e.g., increasing use of computer automation and the use of robots in work processes) and their potential for adverse *as well as positive* effects on job design and the subsequent psychological effects. Logically, organizations that develop and promulgate such technology should bear a responsibility in supporting this research effort.

As an important related issue, this research must come to grips with several methodologic problems associated with research on occupational stress. Advances of particular importance are:

- Increased use of longitudinal prospective and follow-up research designs of psychological outcomes.

- Development of more standardized methods for assessing psychosocial risk factors on the job.

- Greater adherence to the use of standard psychometric instruments in assessing psychological outcomes.

- More extensive use of collateral measures of both working conditions (e.g., assessments by co-workers, managers, objective measurements) and the indicators of psychological health effects (e.g., self-reports, medical and personnel records, psychophysiological measures, performance, attendance, and supervisory and peer evaluations).

- Increased efforts toward representative sampling procedures and replication to assure that the findings will have general application (e.g., the use of multiple worksites or industries in the investigation of a particular occupation or job dimension).

- Increased use of advanced statistical methods, such as structural analysis, to improve the understanding of causal mechanisms and pathways.

B. Surveillance of Psychological Disorders and Risk Factors

Any strategy for preventing health disorders has a central need for ongoing surveillance of disorders and risk factors to detect and react to emerging problems and to evaluate interventions. Current surveillance systems are insufficient to identify work-related psychological disorders or to aid in their prevention.

1. Surveillance: The Status Quo

a. Surveillance of Psychological Disorders

Although reports cited earlier in this document give some indication of the prevalence of psychological disorders as an occupational health problem, most are only suggestive at best. Many information sources lack the continuity, breadth, and specificity required for effective surveillance of occupational psychological disorders. However, two nationwide studies conducted by the National Center for Health Statistics (NCHS) — the National Health Interview Survey (NHIS) and the National Health and Nutrition Examination Survey (NHANES) — offer some potential in this regard. Although neither study was designed specifically for surveillance of psychological disorders, both contain limited data on psychological disorders, occupation, and industry. Thus far, however, these databases have not been used specifically for surveillance of occupational mental health. For example, NCHS does not routinely provide cross-tabulations of psychological disorders by occupation or industry in its published reports.

The Epidemiological Catchment Area (ECA) program sponsored by NIMH represents a recent, comprehensive attempt to assess the prevalence of major psychiatric disorders as classified by the DSM-III (*10*). This program involved interview surveys conducted in households at five sites across the country. Follow-up interviews at 6-month and 1-year intervals also made possible the determination of incidence rates for mental dis-

orders. Although occupation and industry data were obtained in the survey, the collection process was not standardized. Another limitation was that only "current" occupation rather than occupational history was recorded. Finally, NIMH has no plans to repeat the ECA survey at regular intervals.

Also at the national level, data from the Social Security Administration (SSA) on disability allowances hold potential for tracking psychological disorders in relation to occupations. As noted earlier, NIOSH has used these data to investigate occupational differentials in disabling conditions. NIOSH is currently studying whether SSA allowance data can be used to track psychological disorders.

At the state level,[7] workers' compensation data have not been used extensively to track psychological disorders in relation to occupational factors. However, there is a lack of uniformity across the states in diagnostic criteria and in laws governing the compensability of psychological disorders. Moreover, these data are not easily retrievable.

b. Surveillance of Job Risk Factors

The Quality of Employment Surveys sponsored by the Department of Labor in 1969, 1973, and 1977 constitute the only representative national effort to monitor working conditions and to explore quality-of-work-life issues (*29,84,85*). This series of household surveys solicited information on a broad range of factors that contribute to the quality of work life.

Topic areas included job content, job security, participation, earnings and fringe benefits, and health and safety concerns. No such surveys have been conducted since 1977.

2. Recommendations for Improving Surveillance of Work-Related Psychological Disorders and Risk Factors

The following recommendations are offered to improve existing practices for surveillance of occupational psychological disorders and for surveillance of occupational conditions that place workers at risk for psychological disorders.

a. At the National Level

i. The Department of Labor should reinstitute Quality of Employment Surveys in conjunction with NIOSH to monitor the prevalence of risk factors in the workplace. More extensive data on psychological disorders should be collected in these surveys.

ii. NIOSH should work with NCHS to improve the usefulness of NCHS surveys for surveillance of occupational mental health. Similarly, input to the NIMH ECA program should be explored.

7 The State of California is one exception. Similar activities have also been undertaken by the National Commission on Compensation Insurance, an organization linked to compensation insurance underwriters. Topic areas included job content, job security, participation, earnings and fringe benefits, and health and safety concerns. No such surveys have been conducted since 1977.

iii. NIOSH should consider adding suicide and alcohol/drug abuse to the list of Sentinel Health Events (Occupational), thereby stimulating an awareness and recording of these events in relation to occupational factors.

iv. A national clearinghouse is needed to identify and disseminate information on sources of data that contain information on psychological disorders with respect to occupation.

b. At the State Level

i. Through CDC's Health Risk Appraisal Network with state health departments, data on risk factors for psychological disorders could be collected and organized by industry/occupation.

ii. The National Association of State Mental Health Directors should initiate efforts to assemble data on psychological disorders for surveillance of occupational mental health.

iii. Workers' compensation databases should be evaluated to identify high-risk occupations or industries.

c. At the Company/Industry Level

i. Health examinations of employees should note psychological health status to help detect emerging problems. Data on working conditions should be recorded at the same time so that organizational risk factors can be identified.

ii. In general, data from health care providers (e.g., EAPs, company medical departments) should be used in aggregate (to assure confidentiality) for organizational or industry surveillance of psychological disorders and risk factors.

iii. Assessments for workplace safety and industrial hygiene should be expanded to incorporate workplace risk factors for psychological disorders.

C. Information Dissemination, Education, and Training

Prevention of work-related psychological disorders ultimately depends on the qualifications and resources that permit individuals to recognize psychological disorders and the underlying risk factors and to implement control measures. Individuals who play a principal role in this capacity include workers, management personnel, labor and corporate safety and health personnel, and health professionals in the community. The specific informational/training needs of these individuals can vary according to role, but should encompass:

- Awareness and appreciation of psychological disorders as an occupational health problem.
- Understanding of work and non-work risk factors.
- Recognition of individual signs and organizational manifestations of psychological disorders.

- Reduction of stressful working conditions and personal risks
- Treatment of psychological disorders

1. Information Dissemination, Education, and Training: The Status Quo

Scientific concern with the subject of occupational mental health has grown steadily from its roots in the human relations movement of the 1930s. Despite a now vast literature in this area, however, the role of work experience in the etiology of psychological disorders has received little formal attention in educational programs in the medical, mental health, management, or occupational safety and health community. Only recently, for example, have occupational factors been classified by the American Psychiatric Association as etiologic agents for psychological disorders (*10*). Education for occupational safety and health personnel has historically focused on physical and chemical hazards in the work environment, with little consideration for the potential mental health consequences of working conditions. At present, no major scientific journals focus on the general subject of job stress,[8] and practical or tutorial literature in this area is almost nonexistent.

A NIOSH-funded project conducted in 1982 by Neale et al. provides a rather dismal picture of the training of workers in mental health issues (*86*). Although extensive corporate development of employee health programs was noted in the 80 corporate and labor organizations studied, the investigators concluded about training opportunities in the area of mental health:

> "First, there has been little done to educate *blue collar workers* about workplace stressors of both a physical and psychosocial nature. Similarly, both labor and corporate organizations have invested little time or money toward training workers in how to change or cope with stressful conditions at work." (*86*)[9]

The report also concludes that existing programs tend to be targeted at middle or executive managment, maladaptive health behavior (e.g., substance abuse) and brief presentations of the "workshop" variety that are not evaluated. Some notable exceptions to this pattern exist. For example, NIOSH maintains publication, training, and information-dissemination activities on occupational health issues, including occupational stress. Several labor institutes (e.g., University of Wisconsin School for Workers, Oakland Institute for Labor and Mental Health) are heavily involved with training and information dissemination in the areas of work and mental health. On balance, however, prospects are poor for advances in training and development of general human resources in occupational mental health. Regressive developments are even evident. For example, NIMH recently disbanded the short-lived Center for Work and Mental Health, a program focusing on work and mental health issues.

[8] Numerous journals, however, (e.g., *J. Applied Psychology, J. Occupational Psychology*) accept articles on job stress, and Taylor and Francis began a periodical in 1987 entitled "Work and Stress."

[9] This situation may be changing. A recent national survey found that 26% of worksites polled offered some type of stress management program (*87*).

2. Recommendations for Information Dissemination, Education, and Training

Needs are evident for training opportunities, information availability, and further dedication of relevant organizations to the issues of work and mental health. Avenues and suggestions for improvement in each of these areas include:

a. Training, Education, and the Development of Training and Educational Materials

Worker education is needed, principally about indicators of psychological disorders and job factors that increase the risk for psychological disorders. A need also exists both for educating managers in the mental-health consequences of poor job design and for training managers in the work-related causes of psychological disorders and the necessary control measures. It is particularly important that such training/education reach the top management and labor levels. The training and educational needs of occupational health care professionals include:

- Recognition of occupational risk factors for psychological disorders
- Promotion of occupational mental health
- Management practices that impact on the development and conduct of promotion efforts for occupational mental health

At the same time, mental health professionals in general need to be educated about occupational psychological disorders.

Both NIOSH and OSHA support several programs that can be more fully exploited for these purposes. Training and education opportunities for safety and health professionals can be increased in the general area of work and mental health in the context of NIOSH-funded university programs such as the Educational Resource Centers (ERCs), through NIOSH professional intramural direct-training courses, or through cooperative agreements between NIOSH and schools of public health. Guidelines for ERCs could include a requirement for advanced education in occupational mental health issues for the core disciplines. Certifying boards should be encouraged to include this content in competency/qualifying examinations. In general, professional societies and accreditation organizations need to promote greater attention to occupational factors in training mental health personnel (e.g., clinical psychology, psychiatry, social work) and occupational health personnel, particularly occupational nurses and physicians.

Increased training in job design for management and engineering personnel, as it relates to psychological well-being, could be promoted through the NIOSH projects, "Minerva" and "SHAPE" (Safety and Health Awareness for Preventive Engineering), which are designed to enrich the curricula of business and engineering schools, respectively, in occupational health and safety topics. Industrial engineering programs, in particular, need to be targeted. OSHA funding of labor centers and training-grant programs provides an important mechanism for enriching education at the worker level in the areas of work and mental health.

Funding under the foregoing mechanisms should be channeled not only to deliver training and education but also to develop training and educational materials. Although extensive theoretical and research literature exists in the job stress area, accumulated scientific knowledge has not been translated into applied information in the form of practical guidelines, procedures, and manuals. The need is perhaps most acute for worker-oriented educational material.

b. Dissemination of Information

NIOSH provides technical and reference information on occupational safety and health, including the subject of occupational stress, through its public-access data bases (NIOSHTIC; NIOSH Document Information Directory System) and the NIOSH Publications Clearinghouse. Some of this information has been prepackaged in the form of special bibliographies by subject areas, for example, "health aspects in the use of video display terminals."

The availability of this information is announced by direct mailings to relevant organizations. Access to both the information and the information referral service could be improved by announcements in select trade and scientific media and via the NIOSH Exhibits Program at convocations of the mental health community and other relevant professional, industry, and labor organizations.

The NIOSH Exhibits Program promotes safety and health awareness through displays at meetings of major professional and labor organizations (e.g., American Public Health Association, American Occupational Health Conference, National Safety Council, American Industrial Hygiene Association, American Nurses Association, AFL-CIO Industrial Union Department). This program could provide a vehicle for promotional activities on work and mental health issues. Extension of this exhibits program to key organizations concerned with mental health issues (e.g., the American Psychological Association, the Society for Behavioral Medicine, the American Sociological Association, Association of Labor-Management Administrators and Consultants on Alcoholism, and other relevant state, volunteer, and private organizations) may reap important benefits.

Information on occupational factors in mental health can be disseminated at the industry level through communications and newsletters of trade associations and through the internal health newsletters some large corporations maintain for distribution to their own employees.[10] Efforts of this type should be encouraged because of the job-specific nature of many risk factors.

The subject of psychological problems in relation to work can be incorporated into the agenda of regular safety committee meetings at the worker-management level by disseminating information on problems and controls through meeting notes and labor newsletters. In addition, "telenetworks," such as TEL-MED and HEALTH LINES, which provide public access to prerecorded health information, could disseminate information on work and mental health issues at the level of the individual worker.

10 The Kimberly Clark Health Management Bulletin is an example.

c. Mobilization and Coordination of Relevant Organizations

Professional organizations concerned with mental health should dedicate additional effort and resources to the subject of work and mental health. The American Psychological Association (APA), for example, has no focal activity in this area. One positive step would be for organizations, such as APA or the Human Factors Society, to strengthen divisional or technical group activities in the area of work and mental health, or to conduct regular symposia, paper sessions, or tutorials on this subject at their meetings. Equivalent activities focusing on psychological health outcomes could also be cultivated within professional organizations (e.g., the American Management Association) to deal with the design of jobs and work environments.

Many Federal agencies and national professional organizations[11] offer resources in terms of information, technical expertise, sponsorship of meetings, etc., bearing on work and mental health. Yet, little formal interaction exists among these organizations. Coordinating efforts or developing a more formal network among these organizations could result in improved resources and resource availability in the area of work and mental health. NIOSH and CDC should take the lead and explore mechanisms and subjects of interaction among relevant federal, state, and professional organizations concerned with work and mental health issues. NIOSH should also initiate a conference for State health and mental health departments to discuss and develop action plans that implement the recommendations of this strategy.

D. Enriching Psychological Health Services for Workers

Although improved job design and organizational practices can lead to improved psychological well-being among workers, such steps alone cannot fully eliminate the problems. The workplace is a microcosm of the general community, and the stresses and psychological disorders manifest in the community at large are also felt in the workplace. Regardless of the etiology, these problems are borne by industry through absenteeism, turnover, accidents, slippages in productivity, and health benefits. Rohan has reported, for example, that a chemically addicted employee: 1) is 3.6 times as likely to be involved in an accident; 2) has 2.5 times as many absences lasting 8 days or longer; 3) receives 3 times the average level of sick benefits; and 4) is 5 times as likely to file a claim for workers' compensation (88). It is not surprising, therefore, that industry has responded increasingly with mental health-related services for employees. Although such services play a critical role in the prevention mix, further attention is needed to both their design and availability.

1. Worksite-Based Mental Health Services: The Status Quo

To date, workplace treatment of health problems that have psychological dimensions has been accomplished primarily through employee assistance programs (EAPs) or through referral to community health agencies. Neale has observed that EAPs represent a step in the right direction but often suffer because they 1) focus more on treatment than prevention, and 2) are aimed primarily at reducing personnel productivity problems, alcoholism, and chemical dependency, etc., especially among blue-collar employees (86).

11 Examples include NIOSH, NIMH, National Institute of Drug Abuse, National Institute on Alcohol Abuse and Alcoholism, and the American Psychological Association.

In recent years, EAPs have multiplied exponentially among U.S. firms. Walsh and Hingson cite data from the National Institute on Alcohol Abuse and Alcoholism indicating that the number of EAPs has grown from six in 1945, to 500 in 1973, and 4400 in 1979-1980 (*89*). However, the Association of Labor and Management Administrators and Consultants on Alcoholism estimated that in 1980 about only 12% of the American work force had access to such programs and that availability is restricted primarily to employees of larger organizations. Public employees particularly are slighted in this regard (*46*).

Other health awareness/health promotion programs, apart from EAPs, are also increasing in prevalence in industry. In contrast to EAPs, these programs are aimed more at the prevention of illness through education and the advocation of good health practices. Techniques of health risk appraisal may be used to examine lifestyle risk factors that can result in morbidity or premature mortality. Risk reduction programs, such as nutrition workshops, exercise/fitness activities, smoking cessation clinics, and stress management courses, are offered to effect needed changes. These programs have typically been aimed, however, at the white-collar work force, are episodic, and fail to emphasize occupational factors. Systematic follow-up and evaluation are rare (*86*).

McGinnis views EAPs and health promotion programs as evolutionary stages in the progression toward a more comprehensive approach to worker health in which prevention and treatment activities are integrated to promote overall well-being (*90*). Bezold et al. project an extension of these programs to encompass family and community issues and organizational issues such as management style and environmental policies (*46*).

Thus, while there is a steady movement toward more and improved worksite health opportunities, existing programs clearly have limitations. Moreover, no mental health services are yet available through employment to the vast proportion of workers in America who still have no mental health services available through their employment.

2. Recommendations for Improving Worksite-Based Mental Health Services

Because of the current limitations in occupational health services, the following recommendations are offered to assure services for workplace psychological health that are at least minimally sufficient.

a. Working through existing and new interagency agreements, NIOSH, the Alcohol, Drug Abuse, and Mental Health Administration, and state mental health agencies should support such activities as:

- Demonstration grants for mental health programs in industry
- Development of innovative approaches to mental health services in industry
- Program evaluation research
- Development of communication networks linking industry, providers, and resource organizations

- Educational efforts such as symposia and workshops on worksite mental health programs

- Direct consultation with industry or trade associations, individual businesses, and labor organizations to promote establishment of high quality service programs for worksite psychological health in all medium-to-large workplaces (e.g., in excess of 100 employees)

b. Mental health services should be integrated into the overall occupational health care program, whether on-site or external to the organization, and developed in a coordinated fashion with input from all relevant departments (e.g., safety, personnel, risk management, line management). Key organizational characteristics of these services should include:

- Joint management-worker input to program planning and administration

- Ongoing services

- A formalized policy for referrals

- Mechanisms for maintaining confidentiality of information

- Guarantee of professional independence of providers

- Specialized training to assure professional competence of staff

- Access to these services via health benefit packages

- Access to the program by employees at all organizational levels

The scope and content of psychological health programs should be adjusted according to local factors such as the nature of the work performed and special needs of the work force. All such programs, however, should offer, at a minimum, basic psychological support in areas common to any work force; for example, personal crisis management, alcohol/chemical dependency, marital/family counseling, and stress management. These services should have both treatment and primary prevention components. More specialized concerns such as impending retirement, lay off, and relocation or other job-specific problems may require additional effort and expertise. Mechanisms should be established for input by consultants in occupational mental health.

These programs could provide a rich source of data through periodic feedback to the organization in aggregate form (to protect confidentiality) to help identify or rectify organizational problems.

c. Within small firms where the establishment of on-site programs for psychological health services may not be feasible, a liaison or network should be established with local mental health or social service agencies to provide a bridge between troubled workers and treatment facilities. Formalized relationships should be developed so that routine referral is possible and mental health personnel from the agencies can be enlisted readily for specialized programs. State or local mechanisms should be developed to assist small firms in seeking these appropriate mental health services.

d. Local mental health and social service agencies should develop internal staff competence or seek consultation from appropriately skilled professionals on occupational mental health issues.

e. Further broadening of services in occupational psychological health, along the lines described above, is needed for federal, state, and municipal public employees.

f. In line with increasing judicial recognition of the occupational components of disabling emotional disorders (97), health insurance benefits for treatment of such problems should be expanded and increased.

g. In general, traditional efforts through EAPs and health promotion should evolve to a higher state of awareness and practice, with a more holistic view of the worker, recognizing both occupational and nonoccupational factors that are influential to health, and offering opportunities for both collective interventions and those designed for individuals.

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